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**U.S. ARMY ABERDEEN TEST CENTER
ABERDEEN PROVING GROUND, MD 21005-5059
TEST RECORD**

14 JUL 1999

TECOM Project No: 1-VG-650-HMT-012
Type Test and Title: Technical Feasibility
Test of the High Mobility Trailer (HMT)

Dates of Test: 21 April through
8 July 1999
Authority: TECOM Test Execution
Directive, 14 April 1999
Test Record No: AC-V-48-99

TEST ITEMS

Two High Mobility Trailers (HMTs), serial numbers 05512 (HMT-5) and 05498 (HMT-6) were provided for testing. Both trailers were equipped with steel drawbars and Dico Co., Inc Model 6 surge brakes. The prime movers were M998 model HMMWVs with new rear cross-members and inner braces.

SUPPORTING FACILITIES AND INSTRUMENTATION

a. Facilities

Building 436 - Field Engineering Laboratory
Building 402 - Contractor Operated Automotive Maintenance Facility
Peryman Automotive Test Area (PTA)

b. Instrumentation

Vehicle Performance Recorders (VPRs)

DETAILS OF TEST

The HMTs were payloaded to 2940 pounds gross vehicle weight (gvw) with a tongue weight of 250 pounds. The M998 HMMWVs were fitted with new rear cross-members and inner braces. The trailers were scheduled to traverse PTA level cross-country 2 (PTA-2) for 2000 miles at speeds not to exceed 20 miles per hour (mph) and PTA-3 for 1500 miles at speeds not to exceed 15 mph. The surge brakes were disassembled after every 500 miles of operation and the inner slide, housing and lunette carefully checked for damage. The HMMWV's cross-member and inner braces were checked as well.

SUMMARY OF RESULTS

- a. The initial inspection found the trailers in a ready for test condition.
- b. After every 500 miles of operation (250 miles each on PTA-2 and PTA-3) the surge brake housing, inner slides, and lunette on the HMT and the rear cross-member and inner braces on the HMMWV were inspected.
- c. HMT -6. During the 500 mile check the mounting bolts on the cross-member and inner slides were loose. No damage was noted. The bolts were tightened and testing was resumed.
- d. HMT-6. During the 1000 miles check cracks were noted on the upper part of the inner slide at the emergency breakaway notch. No action was taken and testing was resumed.
- e. HMMWV L-2 towing HMT-6. The left and right inner braces cracked at the bolt holes in front at 1409 test miles. Replaced inner braces and cross-member and resumed testing.
- f. HMMWV L-1 towing HMT-5. Both inner braces and cross-member were broken at 1940 test miles. The front landing leg on the HMT broke when attempting to disengage the HMT from the HMMWV. The landing leg was repaired. A new cross-member and inner braces were installed on L-1 and testing was resumed.
- g. HMT-5. During the 2000 mile inspection the lunette was noted to be excessively worn. The remaining diameter was less than 1". TACOM was notified and testing resumed.
- h. HMT-6. During the 2000 mile inspection the upper portion of the inner slide showed abnormal wear. No action was taken and testing was resumed.
- i. HMT-5. A new surge brake assembly was installed after 2383 test miles (see para g.).
- j. HMT-6. During the 2500 mile check the cracks on the upper portion of the inner slide were noted to have grown. The crack on the left side measured approximately 1-1/2 inches toward the side of the slide. The crack on the right side measured approximately 1 inch towards the center of the slide.
- k. HMMWV L-2 towing HMT-6. Left side inner brace was cracked. The locking nuts on the left and right side of the braces had backed off. Replaced inner braces and cross-member and resumed testing.
- l. HMT-6. The crack on the left side of the inner slide had propagated to the horizontal slot for the main pin. The surge brake assembly was replaced and testing was resumed.
- m. HMT-5. Replaced upper roller pin and locking nut (At TACOM direction) during 3000 mile check.

n. HMT-5. At 3500 mile check the following was noted:

1. Upper roller not rolling.
2. Upper roller "ears" were pinched in.
3. Upper roller pin holes were worn in an oval shape (egged out).
4. Housing below "ears" was bowed outward.
5. Master pin hole was egged out.
6. Crack in weld at hanging bracket above axle.
7. Top of inner slide where roller rides was worn.

o. HMT-6. At 3500 miles check the following was noted:

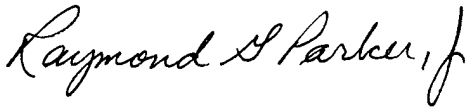
1. Top of inner slide where roller rides was worn.
2. Upper roller pin holes were egged out.
3. Master pin hole was egged out.

This is the final report on this task

FUTURE RELATED WORK

Additional High Mobility Trailer testing.

SUBMITTED BY:




RAYMOND G. PARKER, JR
Test Director

REVIEWED BY:



LYNN W. BERKHEIMER
Chief, Vehicles Team

FOR THE COMMANDER:



JOHN SOBCZYK
Director, Automotive Core

Encl
Distribution List

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DISTRIBUTION LIST

<u>Addressee</u>	<u>No. of Copies</u>
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Raytheon, Inc. ATTN: Mr. T. Rossi, Contract Manager HMT Program Director 1301 E. Collins Boulevard Richardson, TX 75083-1359	1 1
DOD PM-Mobile Electric Power Suite 200 7798 Cissna Road Springfield, VA 22150	5

Director
Military Traffic Management Command
Transportation Engineering Agency
ATTN: MTTR-TR
720 Thimble Shoals Boulevard
Newport News, VA 23606-2574

1

Director
U.S. Army Research Laboratory
ATTN: AMSRL-OP-AP-L
Bldg 305
Aberdeen Proving Ground, MD 21005-5066

2

Commander
U.S. Army Aberdeen Test Center
ATTN: STEAC-AC-V (Mr. Parker)
STEAC-SC-A
Aberdeen Proving Ground, MD 21005-5059

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Defense Technical Information Center
8725 John J. Kingman Road
Suite 0944
Fort Belvoir, VA 22060-6218

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